

PRODUCTION OF TITANIUM-COPPER ALLOY EXCELLENT IN BENDABILITY AND STRESS RELAXATION PROPERTY

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Abstract

PURPOSE: To obtain the alloy having high strength, comparable to Cu-Be alloy, by strictly specifying the proportion of Ti in a Cu-Ti alloy and regulating crystalline grain size by applying solution heat treatment prior to each cold rolling performed twice under specific conditions.

CONSTITUTION: A copper alloy, having a composition consisting of, by weight, 0.01-4.0% Ti and the balance Cu, is subjected to solution heat treatment at ≥ 800 deg.C for ≤ 240 sec under the heat treatment conditions where average crystalline grain size does not exceed 20 μ m. Then, cold rolling is done at $< 80\%$ draft. Subsequently, a second solution heat treatment is done at ≥ 800 deg.C for ≤ 240 sec under the heat treatment conditions where average crystalline grain size is 1-20 μ m. Then, a second cold rolling is done at $\leq 50\%$ draft. Further, aging treatment is done at 300-700 deg.C for 1- < 15 hr. Moreover, 0.05-2.0% Zn and 0.01-3.0%, in total, of one or more elements among Cr, Zr, Fe, Ni, Sn, In, Mn, P, and Si can further be incorporated into the above alloy.

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